

# **Temporal changes in seismic wave propagation characteristics during the 2002-2003 Mt. Etna eruption**

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Stress can undergo rapid temporal changes in volcanic environments, and this is particularly true during eruptions. We use two independent methods, Coda Wave Interferometry (CWI) and Shear Wave Splitting (SWS) analysis to track stress related wave propagation effects during the 2002 NE fissure eruption at Mt. Etna. CWI is used to estimate temporal changes in seismic wave velocity, while SWS is employed to monitor changes in elastic anisotropy. We analyze seismic doublets, detecting temporal changes both in wave velocities and anisotropy, consistent with observed eruptive activity. In particular, co-eruptive wave propagation changes indicate a depressurization of the system, heralding the termination of the eruption, which occurs three days later.